

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of allocating a communication medium between a plurality of stations in a network, comprising:

dynamically assigning one of the stations as a starting bus master;

the starting bus master establishing an order in which the stations have access to the communication medium;

appointing an ending bus master to a last station in the order;

the starting bus master sending the order to all of the stations in the network;

the starting bus master initiating a message sequence with a beginning of sequence message;

the stations transmitting their messages after the beginning of sequence message according to the order;

each station beginning transmission of its message upon receipt of an end of the message transmitted by the station immediately preceding it in the order; and

the ending bus master appending an end of sequence message which indicates an end of the message sequence.

2. (Canceled)

3. (Original) The method as set forth in claim 1, wherein transmitting messages comprises transmitting message of varying sizes.

4. (Original) The method as set forth in claim 1, wherein transmitting messages includes transmitting a synch message indicating that no data is being transmitted.

5. (Original) The method as set forth in claim 1, wherein assigning one of the stations as the starting bus master comprises assigning the bus master to a station at an end of the communication medium.

6. (Original) The method as set forth in claim 5, wherein assigning the starting bus master to the station at the end of the communication medium comprises sending queries to each station in the network and measuring delay time associated with responses from each station.

7. (Original) The method as set forth in claim 1, wherein assigning the starting bus master comprises assigning the first station as the bus master.

8. (Original) The method as set forth in claim 1, further comprising detecting a new station and adding the new station to the order.

9. (Original) The method as set forth in claim 8 wherein adding the new station to the order is performed by the starting bus master and the starting bus master sends the order having the new station to all stations.

10. (Original) The method as set forth in claim 8, wherein adding the new station to the order is performed by all stations.

11. (Original) The method as set forth in claim 8, wherein detecting the new station comprises detecting a new station message inserted by the new station after the end of sequence message.

12. (Original) The method as set forth in claim 8, further comprising assigning the starting bus master to the new station.

13. (Original) The method as set forth in claim 8, wherein detecting and adding the new station dynamically recomputes the length of the communication medium.

14. (Original) The method as set forth in claim 1, further comprising detecting a removal of one of the stations from the network and removing the one station from the order.

15. (Original) The method as set forth in claim 14, wherein removing the one station from the order is performed by the starting bus master and the starting bus master provides the order without the one station to all stations.

16. (Original) The method as set forth in claim 14, wherein removing the one station from the order is performed by all stations.

17. (Original) The method as set forth in claim 14, wherein detecting the removal of the one station comprises not detecting any message from the one station for a period of time.

18. (Original) The method as set forth in claim 14, wherein the one station removed from the network comprises the starting bus master and the method further comprises assigning the starting bus master to another one of the stations in the network.

19. (Original) The method as set forth in claim 14, wherein the one station removed from the network comprises the ending bus master and the method further comprises assigning the ending bus master to another one of the stations in the network.

20. (Original) The method as set forth in claim 14, wherein detecting the removal of the one station comprises reducing a length of the communication medium.

21. (Original) The method as set forth in claim 1, further comprising monitoring messages transmitted by the stations and generating an event log.

22. (Original) The method as set forth in claim 21, wherein generating the event log comprises identifying each station in the network and indicates an order of transmission authority.

23. (Original) The method as set forth in claim 21, wherein generating the event log comprises recording errors detected during operation of the network.

24. (Original) The method as set forth in claim 21, wherein generating the event log comprises tracking successful delivery of each message.

25. (Original) The method as set forth in claim 21, further comprising tracking a wavelength of operation for each station.

26. (Original) The method as set forth in claim 1, further comprising assigning a unique address to each station.

27. (Original) The method as set forth in claim 1, further comprising assigning stations different wavelengths to transmit messages.

28. (Original) The method as set forth in claim 1, further comprising assigning stations wavelengths to receive messages.

29. (Original) The method as set forth in claim 1, further comprising assigning stations frequencies to transmit messages.

30. (Original) The method as set forth in claim 1, further comprising assigning stations frequencies to receive messages.

31. (Original) The method as set forth in claim 1, further comprising detecting an absence of a message from one of the stations.